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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/938,496

08/27/2001

Hideo Miyake

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21171

7590

12/08/2006

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EXAMINER

BATES, KEVIN T

ART UNIT

PAPER NUMBER

2155

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



**Office Action Summary**

Application No.

09/938,496

Applicant(s)

MIYAKE ET AL.

Examiner

Kevin Bates

Art Unit

2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-5, 7, 8, 10-13 and 15-22 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 2-5, 7-8, 10-13, 15-22 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_.



***Response to Amendment***

This Office Action is in response to a communication received on August 11, 2006.

Claims 1, 6, 9, and 14 have been cancelled.

Claims 2, 4-5, 7-8, 10, 12-13, 15-18 have been amended.

Claims 20-22 have been added.

Claims 2-5, 7-8, 10-13, 15-22 are currently pending in this application.

***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Computer Organization & Design (Computer Organization & Design; Patterson et. al.) (Hereinafter Patterson).**

Regarding claims 17, 21, and 22, Patterson teaches a computer which processes an interrupt of a program caused by an exception operation when an instruction is executed (Page 223, Paragraph 1), said computer comprising:



A data holding part holding said instruction that is interrupted by said interrupt at a time when said interrupt starts to occur (Page 223, Paragraph 1); and

At least one instruction execution part using the data held by said data holding part to continue execution of said instruction without rerunning said instruction (Page 223, Paragraph 2).

**Regarding claims 2 and 10**, Patterson teaches that the storage medium is a plurality of registers (Page 223, Paragraph 1).

**Regarding claims 5, 13, and 19**, Patterson teaches that said data holding part holds an instruction address of an instruction which causes said interrupt (Page 223, Paragraph 2).

**Regarding claims 8, 16, and 18**, Patterson teaches that said data is used for recovery from said interrupt (Page 223, Paragraph 2).

**Regarding claim 20**, Patterson teaches that the interrupt processing is initiated by an exception operation (Page 223, Paragraph 1).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 3-4, 7, 11-12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Computer Organization & Design; Patterson et. al. in view of Cheong (6098167).**



**Regarding claims 4 and 12**, Patterson teaches the computer claimed in claims 21 and 22.

Patterson does not explicitly indicate that when a stored instruction gets interrupted, said store instruction requested said data is stored at the data storing part.

Cheong teaches a system for allowing interrupts of instructions, where there is a data holding part for holding the interrupted instruction (Column 15, line 64 – Column 16, line 3), that data from the instruction is maintained (Column 15, line 64 – Column 16, line 3) and that this includes store instructions (Column 16, lines 5 – 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Cheong's teaching of holding more information about the interrupted instruction in Patterson in order to allow out of order processing while maintaining storage consistency.

**Regarding claims 7 and 15**, Patterson teaches the computer in claims 21 and 22.

Patterson does not explicitly indicate wherein said data holding part holds an effective address of a load or store instruction when said interrupt occurs during said instruction.

Cheong teaches a system for allowing interrupts of instructions, where there is a data holding part for holding the interrupted instruction (Column 15, line 64 – Column 16, line 3), that data from the instruction is maintained (Column 15, line 64 – Column 16, line 3) and that this includes store and load instructions (Column 16, lines 5 – 7).



It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Cheong's teaching of holding more information about the interrupted instruction in Patterson in order to allow out of order processing while maintaining storage consistency.

**Regarding claims 3 and 11**, Patterson teaches the computer in claims 2 and 10.

Patterson does not explicitly indicate teaches that flags indicate whether said data is held in said register.

Cheong teaches that flags indicate whether said data is held in said register (Column 16, lines 43 – 51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Cheong's teaching of holding more information about the interrupted instruction in Patterson in order to allow out of order processing while maintaining storage consistency.

### ***Response to Arguments***

Applicant's arguments with respect to claims 17, 21, and 22 have been considered but are moot in view of the new ground(s) of rejection.

### ***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No. 6681280 issued to Miyake, because it teaches interrupts and storing instructions.



U. S. Patent No. 5557766 issued to Takiguchi, because it teaches improved recovery from interrupted involving registers.

U. S. Patent No. 5222241 issued to Murakami, because it teaches using registers to improve interrupt recovery.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Bates whose telephone number is (571) 272-3980. The examiner can normally be reached on 8 am - 4:30 pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KB

KB  
December 1, 2006

  
SALEH NAJJAR  
SUPERVISORY PATENT EXAMINER